A Post Report

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Heptachlor, Problem Pesticide

Editor's Note—This is the first of three articles dealing with 'Heptachlor' and the recent action by various health departments cutting off milk shipments.

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Heptachlor, a pesticide once hailed as a major development in the field of agriculture chemicals, has become a dirty word to area dairy farmers.

Heptachlor was first registered by the United States Department of Agriculture for use on alfalfa in 1953, and at that time a tolerance of 0.1 part per million residue was set.

Considered Zero Level

In January of 1960 the Food and Drug Administration reduced the tolerance level to zero, but methods of detection were then of a quality that residues of less than 0.1 PPM in milk or 2.5 PPM in butterfat were considered to be zero.

This, in effect, meant that the FDA was still acting at the 0.1 level in milk.

Spring Withdrawn

Heptachlor had been recommended by many states as a spring treatment for alfalfa to control alfalfa weevil, but when the tolerance level was changed to zero recommendations for spring treatment were withdrawn by the states and the USDA.

Work at several experiment stations later indicated that there appeared to be no residue in hay if heptachlor was applied in the fall and that fall treatment gave good weevil control, so this use of the pesticide was considered safe by the USDA. Use as a fall treatment was established in August 1960 in several states.

Re-evaluation

However, this use was not recommended by the University of Maryland until fall of 1961 following a re-evaluation by the Pesticide Regulation Branch of USDA.

Heptachlor, a chlorinated hydrocarbon, is very stable chemically, and does not early break down into components. Its first breakdown stage, heptachlor epoxide, is also stable and considered the same as heptachlor.

Resistant To Decay

Most organic material, when incorporated into the soil are attacked by microorganisms and immediately decomposed. Some materials, such as plastics and chlorinated hydrocarbons like heptachlor, are resistant to microbial decay and can only be removed from the soil by dilution and running off with water.

Very little information is available, according to the University of Maryland, regarding the rate of disappearance of Heptachlor or its epoxide from the soil, and much of what is available was gathered prior to the registration of the label.

Disappearance Rate

Some of the research available indicates that heptachlor, is applied at an extremely heavy rate of five pounds per acre, disappears at a rate of one-half of that amount per year. In one

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experiment with heptachlor applied at that rate, traces were detected in the soil more than nine years after application. The recommended rate was one pound per acre.

Early work with heptachlor indicated that no appreciable amount of the chemical was absorbed by growing plants, but with newer detection methods there is evidence that heptachlor is absorbed, in minute amounts.

Dust Distribution

There is also speculation that a good deal of the contamination of alfalfa comes from soil particles and dust distributing the pesticide onto the foilage of the plants. However, no one is sure.

Some authorities believe that if contaminated soils are plowed so that residues are placed at plow depth rather than being on the surface of the ground, that the amount of contamination by dust would be greatly reduced.

No Evidence

However, there is no experimental evidence to substantiate such a theory, and with present information the University of Maryland does not recommend plowing under alfalfa specifically for the purpose of eliminating a problem with heptachlor or dieldrin.

The safest thing, of course, is for a farmer to rely as much as possible on hay, pasture, and silage crops grown on land which has not been treated with any of the problem pesticides.